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AWARD OF THE DONOHOE COMET MEDAL.

The Comet Medal of the Astronomical Society of the Pacific has been awarded to Monsieur JÉROME COGGIA, Astronomer of the Observatory of Marseilles, for his discovery of a comet on July 18, 1890, at $10^h 9^m$, Greenwich mean time. This is the eighth comet discovered by M. COGGIA.

The Committee on the Comet Medal,
EDWARD S. HOLDEN,
J. M. SCHAEBERLE,
CHARLES BURCKHALTER.

NOTICES FROM THE LICK OBSERVATORY.

PREPARED BY MEMBERS OF THE STAFF.

DARK TRANSIT OF THE III SATELLITE OF *JUPITER*.

The third satellite was observed as a dark body on the disc of *Jupiter* on the evening of Sept. 2d. The transit was nearly over before the planet could be seen, and the observations were much interrupted by clouds.

The satellite was visible on the inner edge of the north equatorial belt, partly on the belt and partly on the bright equatorial region. It was very dark—darker than the small dark spots on the north belt following. The following measures were made of its position on the disc of *Jupiter*.

Sidereal time, $17^h 39^m$ distance from south pole=26″.0 (2)
" " 17 43 " " north " =19 .7 (2)

It was first seen at $17^h 25^m$. Below are the most important notes:

$17^h 48^m$. Still dark. It is exactly like the small dark spots in size and depth of color. (Seeing = 1.)

$17^h 53^m$. Still dark; perhaps a little smaller.

$17^h 55^m$. It is paler and smaller than the dark spots.

$17^h 57^m$. III is very small, but still dark.

$17^h 59^m$. Still dark, and very small; about one-fifth the diameter of its shadow.

$18^h 0^m$. A very small dark speck.

$18^h\ 2^m$. Excessively small and dark.

$18^h\ 4^m$. A very small dark speck near p. limb.

$18^h\ 6^m$. It is lost; but almost instantly the pale round disc of the satellite appeared in relief on the planet.

$18^h\ 8^m$. Looking carefully, there is a tiny dark speck at the following edge of the satellite.

$18^h\ 9^m$. The disc of III is quite white, and the dark speck has vanished. The satellite is whiter and brighter than the limb.

After the satellite had emerged from the disc of *Jupiter*, no spot could be seen on it with any power. (Seeing = 3.) It was much brighter than any portion of the planet.

The important point in observations of the phenomena of these dark transits will be to keep a close watch of the satellite at the moment of its transition from light to dark, and *vice versa*; for upon this point hinges the true explanation of the phenomenon.

The appearance at the time of this transition was the same in the case of Satellites IV (Aug. 13) and III, except that for III the change occurred some time before reaching the limb (as in all my previous observations of it).

At a certain point the dark satellite begins to diminish in size—getting smaller and apparently remaining stationary. The appearance is as if the satellite were slipping out from under some obscuring medium, which could only be seen when on the satellite, and which grows smaller and smaller as the satellite leaves it, until it is finally crowded off at the following edge. These remarks refer only to the end of the dark transit, as I have not yet had the opportunity of witnessing the beginning of such a transit at any time with the twelve-inch.

Any observations of these dark transits are very valuable; for it will be through the accumulation and discussion of such observations that this remarkable phenomenon will be explained.

Here is a good opportunity for members of the A. S. P. possessing even small telescopes to contribute something of value. They should frequently examine *Jupiter* during the transit of any of his moons, especially in transit of IV and III.

It is just as important to know that they were not dark or black during transit; and therefore all records of non-dark transits are valuable.

Of these satellites, I frequently transits as a dusky spot, but not black. II I have never seen dark, nor do I know of any observations of it as a dark spot. III and IV transit as dark or black spots, more frequently than would be supposed.

The following were the observations of the satellite as it left the planet:

Internal contact......$7^h\ 19^m\ 21^s$ Mt. Hamilton m. t.
One-half off.........7 21 5 " " "
External contact......7 25 55 " " "

According to American Ephemeris, the egress should have been at $7^h\ 26.7^m$, Mt. Hamilton m. t. E. E. B.

MT. HAMILTON, Sept. 3, 1890.

DARK TRANSITS OF *JUPITER'S* FIRST SATELLITE.

A dark transit of *Jupiter's* first satellite occurred on the evening of August 23d. As this was a public night at the Observatory, it was not possible to observe the phenomenon properly; but from such views as were obtained from time to time with the thirty-six-inch equatorial, the satellite, which near the limb of *Jupiter* appeared as a bright white spot, reached equality of brightness with the surface of the planet at about one-fifth of its path on the disc from the limb, and near the center of the disc appeared as a round pale, grayish spot. At egress the order of appearances was reversed.

The satellite traversed the northern half of the white equatorial zone. Its shadow, which was projected on the same belt, was perfectly black.

Almost the same phenomena were observed in the transit of the first satellite on August 30th. J. E. K.

A POSSIBLE EXPLANATION OF THE DARK TRANSITS OF THE SATELLITES OF *JUPITER*.

The phenomena presented by the dark transits of *Jupiter's* satellites are among the most puzzling in the solar system, and any explanation which does not do violence to known natural laws, and is within the bounds of ordinary probability, must be regarded as entitled to some amount of consideration. It is from this standpoint that I wish to present the following as, at least, a possible explanation.

The principal facts to be accounted for are these:

1. In ordinary transits, the satellite is bright when projected upon the surface of *Jupiter* near the limb, and is usually lost sight of when it reaches the central parts of the disc.

2. Occasionally the satellite appears darker than the surface of *Jupiter* when in transit, even when projected on the brightest parts